CLAIMS

The invention claimed is:

1. A device associated with a semiconductor substrate and comprising:

an electrical node supported by the semiconductor substrate and comprising conductively-doped semiconductive material;

a first dielectric material comprising aluminum oxide;

a second dielectric material comprising a metal oxide selected from the group consisting of hafnium oxide, tantalum oxide, titanium oxide and zirconium oxide; and

wherein the first dielectric material is between the second dielectric material and the conductively-doped semiconductive material.

2. The device of claim 1 wherein the conductively-doped semiconductive material comprises conductively-doped silicon.

3. The device of claim 1 wherein the conductively-doped semiconductive material consists essentially of conductively-doped silicon.

4. The device of claim 1 wherein the conductively-doped semiconductive material consists of conductively-doped silicon.

5. The device of claim 1 wherein the second dielectric material consists essentially of hafnium oxide.

6. The device of claim 1 wherein the second dielectric material consists of hafnium oxide.

7. The device of claim 1 wherein the second dielectric material consists essentially of tantalum oxide.

8. The device of claim 1 wherein the second dielectric material consists of tantalum oxide.

9. The device of claim 1 wherein the second dielectric material consists essentially of zirconium oxide.

10. The device of claim 1 wherein the second dielectric material consists of zirconium oxide.

11. The device of claim 1 wherein the first dielectric material consists essentially of aluminum oxide.

12. The device of claim 1 wherein the first dielectric material consists of aluminum oxide.

13. The device of claim 12 wherein the first dielectric material has a pair of opposing surfaces with one of the opposing surfaces being in physical contact with the conductively-doped silicon and the other of the opposing surfaces being in physical contact with the metal oxide of the second dielectric material.

14. The device of claim 13 wherein the first dielectric material has a thickness between the opposing surfaces of from about 5Å to about 60Å.

15. The device of claim 13 wherein the second dielectric material consists of the metal oxide and has a thickness of from about 20Å to about 90Å.

16. The device of claim 1 comprising a capacitor electrode over the second dielectric material and being a capacitor.

17. A DRAM array comprising one or more of the capacitor constructions of claim 16.

18. An electronic system comprising the DRAM array of claim 17.

19. A capacitor construction comprising:

a first capacitor electrode comprising conductively-doped silicon;

a second capacitor electrode comprising one or more materials selected from the group consisting of metals and metal compounds;

a first dielectric layer between the first and second capacitor electrodes, the first dielectric layer comprising aluminum oxide;

a second dielectric layer between the first and second capacitor electrodes, the second dielectric layer comprising a metal oxide other than aluminum oxide;

wherein the first dielectric layer is between the second dielectric layer and the conductively-doped silicon; and

wherein the metal oxide of the second dielectric layer is in physical contact with the second capacitor electrode.

20. The capacitor construction of claim 19 further comprising one or more additional dielectric layers between the first and second capacitor electrodes besides the first and second dielectric layers.

21. The capacitor construction of claim 19 wherein the first and second dielectric layers are the only dielectric layers between the first and second capacitor electrodes.

22. The capacitor construction of claim 21 wherein the first and second dielectric layers have a combined thickness of from about 25Å to about 150Å.

23. The capacitor construction of claim 22 wherein the first dielectric layer has a thickness of from about 5Å to about 60Å.

24. The capacitor construction of claim 22 wherein the second dielectric layer has a thickness of from about 20Å to about 90Å.

25. The capacitor construction of claim 21 wherein the first and second dielectric layers have a combined thickness of from about 25Å to about 80Å.

26. The capacitor construction of claim 25 wherein the first dielectric layer has a thickness of from about 5Å to about 20Å.

27. The capacitor construction of claim 25 wherein the second dielectric layer has a thickness of from about 20Å to about 60Å.

28. The capacitor construction of claim 19 wherein the metal oxide of the second dielectric layer is selected from the group consisting of hafnium oxide, tantalum oxide and zirconium oxide.

29. The capacitor construction of claim 28 wherein the second dielectric layer consists essentially of hafnium oxide.

30. The capacitor construction of claim 28 wherein the second dielectric layer consists of hafnium oxide.

31. The capacitor construction of claim 28 wherein the second dielectric layer consists essentially of tantalum oxide.

32. The capacitor construction of claim 28 wherein the second dielectric layer consists of tantalum oxide.

33. The capacitor construction of claim 28 wherein the second dielectric layer consists essentially of zirconium oxide.

34. The capacitor construction of claim 28 wherein the second dielectric layer consists of zirconium oxide.

35. The capacitor construction of claim 19 wherein the aluminum oxide of the first dielectric layer is physically against the conductively-doped silicon of the first capacitor electrode.

36. The capacitor construction of claim 19 wherein:

the first dielectric layer consists of aluminum oxide;

the first dielectric layer has a pair of opposing surfaces;

one of the opposing surfaces of the first dielectric layer is physically against the conductively-doped silicon of the first capacitor electrode; and

the other of the opposing surfaces of the first dielectric layer is physically against the metal oxide of the second dielectric layer.

37. The capacitor construction of claim 36 wherein the first dielectric layer has a thickness between the opposing surfaces of from about 5Å to about 20Å.

38. The capacitor construction of claim 36 wherein the second dielectric layer consists of hafnium oxide.

39. The capacitor construction of claim 36 wherein the second dielectric layer consists of tantalum oxide.

40. The capacitor construction of claim 36 wherein the second dielectric layer consists of zirconium oxide.

41. A DRAM array comprising one or more of the capacitor constructions of claim 19.

42. An electronic system comprising the DRAM array of claim 41.

43. A method of forming a capacitor construction, comprising:

providing a semiconductor substrate;

forming a first capacitor electrode over the substrate, the first capacitor electrode comprising conductively-doped silicon;

forming a first dielectric layer over and in physical contact with the conductively-doped silicon of the first capacitor electrode, the first dielectric layer comprising aluminum oxide;

forming a second dielectric layer over the first dielectric layer, the second dielectric layer comprising a metal oxide selected from the group consisting of hafnium oxide, tantalum oxide and zirconium oxide; and

forming a second capacitor electrode over and in physical contact with the second dielectric layer, the second capacitor electrode comprising one or more materials selected from the group consisting of metals, metal compounds and conductively-doped semiconductive material.

44. The method of claim 43 wherein the first and second dielectric materials are incorporated into a stack comprising aluminum oxide and hafnium oxide.

45. The method of claim 43 wherein the first and second dielectric materials are incorporated into a stack comprising, in sequential order within the stack, aluminum oxide, tantalum oxide and hafnium oxide.

46. The method of claim 43 wherein the first and second dielectric materials are incorporated into a stack comprising, in sequential order within the stack, aluminum oxide, zirconium oxide and hafnium oxide.

47. The method of claim 43 wherein the first and second dielectric materials are incorporated into a stack comprising, in sequential order within the stack, aluminum oxide, hafnium oxide, aluminum oxide and hafnium oxide.

48. The method of claim 43 further comprising forming at least one additional dielectric layer over the first dielectric layer before forming the second dielectric layer.

49. The method of claim 43 wherein the second dielectric layer is formed to be in physical contact with the first dielectric layer.

50. The method of claim 49 wherein the forming of the first and second dielectric layers comprises deposition of the first and second dielectric layers using a deposition chamber and without breaking vacuum to the chamber between the deposition of the first dielectric layer and the deposition of the second dielectric layer.

51. The method of claim 49 wherein the forming of the first and second dielectric layers comprises deposition of the first and second dielectric layers using a deposition chamber and with breaking vacuum to the chamber between the deposition of the first dielectric layer and the deposition of the second dielectric layer.

52. The method of claim 49 wherein the first and second dielectric layers are formed to have a combined thickness of from about 25Å to about 80Å.

53. The method of claim 52 wherein the first dielectric layer is formed to have a thickness of from about 5Å to about 20Å.

54. The method of claim 52 wherein the second dielectric layer is formed to have a thickness of from about 20Å to about 60Å.

55. The method of claim 43 wherein the first dielectric layer is formed to consist essentially of aluminum oxide.

56. The method of claim 43 wherein the first dielectric layer is formed to consist of aluminum oxide.

57. The method of claim 43 wherein the second dielectric layer is formed to consist essentially of hafnium oxide.

58. The method of claim 43 wherein the second dielectric layer is formed to consist of hafnium oxide.

59. The method of claim 43 wherein the second dielectric layer is formed to consist essentially of tantalum oxide.

60. The method of claim 43 wherein the second dielectric layer is formed to consist of tantalum oxide.

61. The method of claim 43 wherein the second dielectric layer is formed to consist essentially of zirconium oxide.

62. The method of claim 43 wherein the second dielectric layer is formed to consist of zirconium oxide.